Public Works (1902) Department.

102

G.O., No. 1145 I.

DATED ~~Sepr~~ 4 Octr 1902.

6/10/02

[Despatch Abstract.]

Utilization of the water power from the Periyar Reservoir

Informing Mr Grubble, with remarks, that the Govt is not prepared to make any concession in the matter of the ——— and transferring to the ~~Ry~~ P.W. Deptt Ry Branch for disposal his request for certain Ry: Reports.

The Notes
in this G.O. have been printed.

P.W. 26.
1,500—11-8-00.

INDEXED.
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26/9/2

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

IRRIGATION.

Government {1902} of Madras.

PUBLIC WORKS.

Recd. } 1902. *Enclosures*

Regd. *Spare copies*

G.O., No. 1145 I., 4th October 1902.

N. P.

OCTOBER.

Utilization of the water power from the Periyar Reservoir

Informing Mr. Gribble, with remarks, that the Government is not prepared to make any concession in the matter of the — and transferring to the Public Works Department, Railway Branch, for disposal his request for certain railway reports.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

READ—again the following papers:—

G.O., No. 498 I., dated 28th May 1897.
" " 762 I., " 19th August 1897.
" " 434 I., " 12th April 1902.

READ—also the following papers:—

From J. D. B. GRIBBLE, Esq., I.C.S. (Retired), Yercaud, Shevaroy Hills, to the Chief Secretary to Government, dated 30th May 1902.

Being in communication with one of the leading electric firms in England, I wish to submit certain definite proposals for the employment of the motive power available at the Periyár Falls in the following objects:—

(1) The exploitation of the corundum deposits for the manufacture of aluminium.

(2) The working of a light feeder railway from the head of the Cumbum Valley to the Ammayanáyakkanúr railway station with branches to the Bódináyakkanúr and Kodaikanal ghâts.

(3) Working a system of tramways to connect the junction station at Trichinopoly with the north banks of the Coleroon, towards the anicut to the west and the town of Lalgudi to the east, with a possible extension to Samaiyavaram and Peramalbúr to the north, such tramways to act as feeders to the South Indian Railway in passengers and goods.

(4) To work the proposed light feeder line from Atur in the Salem district to the Salem railway station.

(5) If sufficient power can be made available, to bring it on to Madras or to work other proposed feeder lines to the South Indian Railway.

With the view of aiding me in putting the necessary information before my friends, I have the honour to enquire—

(1) On what conditions are the Madras Government prepared to grant the use of the water coming from the Periyár reservoir? In the event of a power company being formed for the above purposes, would the Government be prepared to give the use of the water for generation purposes on payment of a certain rent per horsepower supplied by the power company to one or several of the above objects—such rent to be reduced when power in excess of a fixed minimum amount of horsepower has been reached?

(2) Will the Government be pleased to supply me with the report of the proposed Salem-Atur feeder railway, and allow me to place myself in communication with the Madras Railway authorities, regarding the formation of a company to construct the same?

(3) Will the Government be pleased to supply me with the same information regarding the Cumbum Valley light railway project, since I understand that the scheme proposed by Messrs. Wilson & Co. has fallen through?

Requesting the favour of an early reply.

Endt. No. 1025, PUBLIC.

Transferred to the Public Works Department.

(Signed) A. R. KNAPP,
Under Secretary.

6th June 1902.

ORDER—No. 1145 I., dated 4th October 1902.

The question of the utilization of the water power that may be made available from the Periyár reservoir is not ripe for solution. In the present state of things no continuous supply throughout the year can be guaranteed, as any water let out from the lake for power generation in the non-irrigation season between 1st March and 15th June, would not only run to waste but considerably reduce the volume of water in the reservoir. In G.O., No. 434 I., dated 12th April 1902, orders have been issued for the investigation of the possibilities of increasing the storage. If this is found feasible, the question of utilizing some of the water for power purposes will be made the subject of further enquiry. Meanwhile Mr. Gribble will be informed that the Government is not prepared to make any concession at present.

2. The requests made in clauses (2) and (3) of the last paragraph of his letter will be transferred to the Public Works Department, Railway Branch, for disposal.

(True Extract.)

(Signed) A. W. SMART, Col., R.E.,
Ag. Joint Secretary to Government,
Irrigation Branch.

To J. D. B. Gribble, Esq.
" the Public Works Department, Railway Branch.
" the Superintending Engineer, VI Circle,
" the Chief Engineer for Irrigation.

Exd. T. K. Narayana Aiyangar.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

NOTES CONNECTED WTH G.O., NO. 1145 I., DATED 4TH OCTOBER 1902.

[SUBJECT.—*Peranai Regulator.*]

Question (1) *in Mr. Gribble's letter, dated* 20*th May* 1902.

Chief Engineer for Irrigation—

With reference to a similar enquiry from Professor G. Forbes, he was informed as follows:—

As regards the rent to be charged for the utilisation of Periyár water power, the Government considers that the first concession, which would include priority of claim to the specified quantity of water, is worth Rs. 15 per effective horsepower per annum or Rs. 900 per cubic foot per second continuous supply. The latter method of calculation is preferred, and the rate calculated on the assumption that at least 900 feet of the fall can be utilized. The investigation of possible sites for reservoirs has been ordered and until it is completed it cannot be stated definitely what continuous supply can be arranged for, but it may be said that it is not likely to much exceed 250 cubic feet per second between February and June. In other months it would be between 500 and 1,100 cubic feet per second.

No guarantee can be given either in regard to the continuity or quantity of the supply; what is possible will be done to secure both under such conditions as may be agreed. Any unoccupied Government land which may be required would be given gratis; other lands will have to be purchased by the lessee. Liberal concessions will be made in regard to the date from which payment of rent should be given and the rate of rent in first few years.

He was also informed that the above was merely intended to indicate the lines on which Government would be prepared to treat and was not to be taken as binding.

Orders are requested if a reply in the above terms may be sent to Mr. Gribble.

Mr. Gribble also asks whether the rent will be reduced when power in excess of minimum amount of horse power has been reached.

Questions (2) and (3) relate to the Railway branch. The paper will be transferred to that branch for necessary action as soon as the first question is disposed of by the Irrigation Rranch.

T. K.
16-7-02.

For orders.

Deputy Chief Engineer for Irrigation—

Please give me your opinion. I doubt if we can guarantee more than 500 cusecs from June (opening of reservoir) to end of south-west monsoon, in north-east we may have to close reservoir when there is rain on areas irrigated; what supply can be given for power then? None apparently. From February (end) to June we could not certainly give 250 cusecs. The case does not look very favourable for continuous working.

A. W. SMART,
16-7-02.

Chief Engineer for Irrigation—

It is assumed as beyond argument that irrigation is to continue to be the raison d'être of the Periyár lake. This being so, experience has shown that it is impossible to guarantee any water at all from February to June. This, I imagine, precludes all question of using the power for railways.

The record of the present season shows further that it is not possible to guarantee absolutely continuous supply even from June to February. This fact is of greater force considering that the season opened most auspiciously.

Supply of water in any quantity would be somewhat dangerous and extremely uneconomical while it was raining over the irrigated area.

There is also the fever question.

Putting aside the difficulties of transmitting power to Trichinopoly and Salem, the above facts are enough to show that railways are not to be thought of. They would also, in my opinion, render manufacture of aluminium impracticable. Besides the shutting down of the works from February to June, the cost of carting the ore to the power without a railway or of transmitting the power to the ore would be prohibitive.

There are innumerable smaller objections more or less arguable, but I think the above is enough to decide any proposal that has yet come up.

Things may be quite different when the proposals to increase storage take shape and are agreed upon. But I do not think so. With the increase of storage, increase of irrigated area ensues and the main facts remain the same. I am all for irrigation first and foremost in this particular connection, and I say irrigation and the utilisation of power on a large scale cannot conceivably be combined: and I would say so to all promoters.

A. T. Mackenzie.
18-7-02.

Unofficial.

Superintending Engineer, VI Circle, for opinion, as also of Mr. Keeling. The only way that a continuous supply for power could be given would be by catching the supply after the water left the turbines in a reservoir below. In this way there would be little or no loss for irrigation.

A. W. Smart.
21-7-02.

To the Superintending Engineer, VI Circle.

With reference to the papers forwarded with your No. C/1. M.D., I submit the following remarks:—

Mr. Mackenzie has, practically speaking, said that in this particular case the development of the power available and the maintenance and extension of irrigation are incompatible. Irrigation must undoubtedly be the first consideration, but I think that it would be the height of folly to sacrifice the power obtainable for the sake of a few thousand acres of irrigation, were it proved that the power could be developed at such a sacrifice. The great obstacle to the development of the power is the fact that, as matters *now* stand, it is not possible to show or guarantee continuous supply without largely reducing the irrigation area. This obstacle will probably disappear altogether with the provision of additional storage above and below, because it will be necessary to empty the upper reservoir during the closure to provide for the advent of the south-west monsoon. It is too early yet to give any definite opinion on the continuous volume that may thus probably become available, but looking at the registers from June 1900 up to date, it seems possible that continuous supply sufficient to produce from 50,000 to 60,000 horse-power could be obtained with the arrangement presumed without any detriment to irrigation. But it is possible that under certain circumstances it might, in bad seasons, be necessary to sacrifice the crops on a comparatively small area to ensure continuity. Such a contingency might be covered by financial compensation from the profits accruing from the sale of the power.

2. Presuming the development of the power to be possible, there is in my opinion no doubt what the first application should be and that is the supersession of steam by electricity on the South Indian Railway for traction purposes. The difficulties in the way are no doubt great, but they are by no means insuperable. The great advances made in electrical science in recent years have largely minimised the difficulties in transmission since Colonel Pennycuick's Committee sat. It must also be remembered that modern electricity which dates, practically speaking, from 1881, is only just of age and that further developments in the voltage at which and distance to which electricity can be conveyed are likely to be practically demonstrated in America in the immediate future.

3. My opinion is that Government are in possession of a valuable source of power, but how valuable it is not possible to definitely state at this juncture. As to how this should be used I personally consider that Government ought to use it for the improvement of what is practically their own property, viz., the South Indian Railway in the first instance. Again, as to how this should be accomplished I am of opinion that the problem should be worked out together with the scheme for additional storage by a Government officer doing the latter. For actual details, such as choice of electrical machines this officer should be empowered to consult electrical specialists if necessary and visit working installations. The money so laid out would not be a large loss supposing the result to be unsatisfactory and quite insignificant in the event of success.

4. As matters stand at present no really genuine offer is likely to be made and any would-be-concessionaire must ask for conditions or guarantees which Government are not now in a position to give. Persons like Mr. Gribble are only after promotion-money, and option sales and a point blank refusal should, in my opinion, be given to all such. As I remarked above I am of opinion that Government should tell their own engineers to thrash the problem out and give discretionary powers to the officer employed. Without the discretionary powers sketched, the problem will eventually disappear in a cloud of correspondence. With them Government would have either a definite scheme before them, or an adverse report after the lapse of two or three years. Either of which would be dealt with on its merits. I am of opinion that this is the course best suited to the interests of Government as it will lead to something definite which is not a possible result with the present mode of dealing with the problem.

Letter from F. J. WILSON, Esq., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Uthamapalayam 29th August 1902, *No. C./6 M.D.*

With reference to your endorsement No. 89 u.o., dated 21st July 1902, I make the following remarks :—

It is practically certain that no use is likely to be made of the Periyár power now being wasted without some guaranteed minimum.

It seems also to be the case that unless such a minimum were fixed at a very low figure, there would probably arise occasions when it would be necessary to sacrifice the interests of the irrigation of a certain area of land, in order to secure the minimum required for the utilisation of the power. The question arises to what extent is such a sacrifice justifiable.

By constructing a reservoir on the plains such as is now being investigated, it seems possible to arrange that a large portion of the horse power available should be utilised in normal seasons without sacrificing irrigation interests at all. In bad seasons the interest of irrigation on a certain area might be sacrificed. On the one hand we have some 30,000 to 60,000 H.P. running absolutely to waste for the greater part of every year whether good or bad and the irrigation of a certain area secured. On the other hand the 30,000 to 60,000 H.P. would be utilised every year, at the possible sacrifice of a small proportion of the irrigated area in bad years only.

When it is considered that the fall available is sufficient to procure 60 effective H.P. for every cusec and that the same discharge from the Periyár tunnel taking wastage into account, probably does not secure the irrigation of much more than the

same number of acres, I cannot believe that the country would not be a gainer by the utilisation of this 60 H.P. at the sacrifice of a proportion of the cultivation of a corresponding area, even should this occur every year, but by hypothesis the sacrifice is only likely to occur in bad seasons and I conclude that the subject is worth careful enquiry.

When Government invited tenders for the utilisation of the Periyár power in 1897, it was clearly stated that no supply could be guaranteed during the non-irrigation season, and that the supply during the irrigation season was to be subject to interruption by accidents or drought, and I think that the subject ought now to be investigated on new lines which should determine what minimum continuous supply could be reasonably guaranteed and at what sacrifice of irrigation interests. Until this is done I think the Government is not in a position to make a satisfactory concession for the utilisation of the power available.

I forward also a note by Mr. Keeling on the subject.

H. E. the Governor—
Hon'ble Mr. Thomson, C.I.E.,—
Hon'ble Mr. Stokes—

I referred the question for opinion to Mr. Mackenzie, Mr. Keeling and Mr. Wilson, Superintending Engineer, VI Circle. Their memoranda are in the file. In my opinion we must tell Mr. Gribble that the question of the utilisation of the water-power that may be made available from the Periyár reservoir is not ripe for solution and that at present we can guarantee no continuous supply throughout the year. We know now that the present storage is hardly sufficient for the land in Madura, that is now or will be shortly irrigated, and that to give a continuous supply from 1st March to 15th June would be detrimental to the irrigation. Supposing, for instance, we passed down 250 cubic feet per second for power from the lake from 1st March to 15th June, the usual time of closure, we should, as matters stand at present, lose $86,400 \times 250 \times 105$ days $= 2,268$ millions cubic feet for irrigation or about 1/3 the reservoir capacity above sill level of tunnel. This would be a serious matter. Recently (*vide* G.O., No. 434 I., dated 12th April 1902) orders have been issued for investigation of the possibility of increasing the storage capacity and of so extending irrigation. If this is possible and if we can catch 250 cubic feet per second or more in a reservoir below the possible site of the power-house, irrigation, which should be the first condition, will lose little or nothing by the use of this continuous supply for power purposes. Under the best conditions in my opinion, it will not be possible to guarantee hereafter with increased storage a greater yearly continuous supply than 250 cubic feet per second, which with the available fall of something over 1,000 feet might give 20,000 to 25,000 effective horse power at the power-house. During the time that the water is being discharged for irrigation, say, from 15th June to the end of February, the horse power that might be generated would be three times as great, but for commercial purposes it is the steady yearly supply, that is the leading factor. As soon as the investigation for increasing the storage has been completed, I would suggest that a committee be appointed to report fully on the feasibility of utilising the power available and how best to reconcile the two interests of irrigation (which has first claim) and of power generation.

A. W. SMART.
3–9–02

I approve. Circulate to Honourable Members.

A[MPTHILL].
5–9–02.

J. T[HOMSON].
6–9–02.

It is plain that at present Government is not in a position to consider any offers and that it will not be so till the storage arrangements are completed. I agree with Mr. Keeling that Mr. Gribble and the like should be met by a point blank statement that Government is not prepared to make any concession at present.

G. S[TOKES].
10–9–02.

[Pub. 29] 2,500—27-2-01. Works

Public Works (1902) Department.

CURRENT No. ~~1548~~ 5807

From

[Name] J. D. B. Gribble Esqr.

[Designation] I. C. S. Retired

[Station] Ootacamund

30

Endt No. 1025 dt 6-6-02

Transferred to the Public Works Department.

[signature]

Under Secretary.

No. —

Dated 31. 5. 1902

Enclosures —

Received 3. 6. 1902 7 9-6-02

Registered 3. 6. 1902.

SUBJECT.

Forwarding for disposal a letter regarding the utilization of the water from the Periyar Reservoir.

BACK PAPERS.

6/15 WGO of 28-4-02	

FURTHER PAPERS.

O.S.3255

CHIEF ENGINEER
FOR IRRIGATION.
7 JUL 1902
No. 161

To

The Chief Secretary to Government,

Public Department.

Sir,

No: 699 D dated 2nd July/02

R. 161 / 7.7.02

To I

~~for~~ disposal.

2.7.02

Register & return

CURRENT NO.
1548
PUBLIC

To the Chief Secretary
to the Govt. Madras
Fort St. George

May 31. 1902

Sir,

As I am not quite aware to which department the accompanying letter regarding the utilization of the water from the Periyar Reservoir, should be addressed, I venture to send it to you direct for disposal.

I remain,
Your most obedient Servant

J. DB. Gibble
I.C.S. (retired)

"Rookery"
Yercaud

To the Secretary to Govt.
Fort St. George

May 30. 1902.

28

Sir,

Being in communication with
one of the leading Electric Firms
in England, I wish to submit cer-
tain definite proposals for the
employment of the motive Power
available at the Periyar Falls in
the following direct[ion]

(1) The exploitation of the corundum
deposits for the manufacture
of aluminium

(2) The working of a light
feeder railway from the head
of the Cumbum valley to the

Ammayanaikanur Railway station
with branches to the Bodynaikanur
and Kodaikanal Ghats.

(3) Working a system of tramways
to connect the Junction station
at Trichinopoly with the North
Banks of the Coleroon, towards the
anicut to the West and the town
of Lalgoody to the East, with a
possible Extension to Samiyavaram
and Perambalur to the North, such
tramways to act as feeders to the
S. I. R. in passengers and goods.

(4) To work the proposed light feeder
line from Attur in the Salem
District to the Salem Railway
Station

(5) If sufficient power can be made available to bring it on to Madras or to work other proposed feeder lines to the S. I. R.

With the view of aiding me in putting the necessary information before my friends I have the honour to enquire

(1) On what conditions are the Madras Govt. prepared to grant the use of the water coming from the Periyar reservoir? In the event of a Power Company being formed for the above purposes would the Govt. be prepared to give the use of the water for generating purposes on payment of a certain

rent per H.P. supplied by the Power Company to one or several of the above objects, such rent to be reduced when Power in excess of a fixed minimum amount of H.P. has been reached.?

(2) Will the Govt. be pleased to supply me with the report of the proposed Salem-Attur feeder Railway, and allow me to place myself in communication with the Madras Railway authorities regarding the formation of a Company to construct ~~~~ the same?

(3) Will the Govt. be pleased to supply me with the same information regarding the Cumbum Valley

2 b

Light Railway project, since I understand that the scheme proposed by Messrs. Wilson & Co has fallen through?

Requesting the favour of an early reply

I remain
Your obedient Servant
J. D B. Gribble
I.C.S. (retired)

My address to the end of June will be Yercaud Shevaroy Hills and after that Hyderabad (Deccan)

CHIEF ENGINEER
FOR IRRIGATION
7 JUL 1902
No. ....

C. No. 5807 161

E. J.

Question (1) in Mr. Gribble's letter d/ 20.5

With reference to a similar enquiry fro[m] Professor G. Forbes, he was informed as follows: "As regards the rent to be charged for the utilization of Periyar Water Power the Govt considers that the first concession which would include priority of claim to the specified quantity of water is worth Rs 15 per effective HP per annum or Rs 900 per cft per second continuous supply. The latter method of calculation is preferred and the rate calculated on the assumption that at least 900 ft of the fall can be utilized. The investigation of possible sites for reservoirs has been ordered and until it is completed it cannot be stated definitely what continuous supply can be arranged for, but it may be said that it is not likely to much exceed 250 cft per second between February and June. In other months, it would be between 500 & ... per second.

No. 4 (b)—500—22-1-02.

No ~~g~~guarantee can be given either in [regard] to the continuity or quantity of [the] supply. What ~~which~~ is possible will be [d]one ~~as~~ to secure both under such [c]onditions as may be agreed. Any unoccupied first land which may [b]e required would be given gratis. [O]ther lands will have to be purchased [by] the lessee. Liberal concessions will [b]e made in regard to the date [f]rom which payment of rent should [be] given and the rate of rent in first [fe]w years.

He was also informed that the above was merely intended to indicate the lines on which Govt. would be prepared to treat & was not to be taken as binding.

Orders are requested if a reply [on] the above terms may be sent [to] Mr. Gribble.

Mr. Gribble also asks whether [the] rent will be revised when ~~[illegible]~~ power [in e]xcess of minimum amount of the [has] been reached.

~~As regards~~ Questions 2 & 3 relate [to] the Ry Branch. The papers will be [tr]ansferred to that branch for [illegible] [ac]tion as soon as the first question is [dis]posed of by the Irrigation Branch.

for orders D. E. I. Please give me your opinion

I doubt if we can guarantee more than 500 cusecs from June (opening of reservoirs) to end of S. W. monsoon) — in N. E. we may have to close reservoirs ~~[illegible]~~ when there is rain in area irrigated — what supply can be given for

Summer supply 2 [illegible] offtakes from [illegible] 15th June we could not certainly give 250 cusecs: because there is not very [illegible] favourable for cultivation in [illegible]
[initials] 16/7/[illegible]

E. 9.

7 P

~~Experience has shown~~

It is assumed as beyond argument that irrigation is to continue to be the raison d'être of the Periyar Lake. This being so, experience has shown that it is impossible to guarantee any water at all from February to June. This I imagine precludes all question of using the power for railways.

The record of the present season shows further that it is not possible to guarantee absolutely continuous supply even from June to February. This fact is of greater force considering that the season opened most auspiciously.

Supply of water in any quantity would be somewhat dangerous & extremely uneconomical while it was raining over the irrigated area.

There is also the fever question.

Putting aside the difficulties of ~~___~~ transmitting power to Trichinopoly & Salem, the above facts are enough to show that railways are not to be thought of. They would also in my opinion render manufacture of aluminium impracticable. Besides the shutting down of the works from Feby to June, the cost of carting the ore to the power, without a railway, or of transmitting the power to the ore would be prohibitive.

There are innumerable smaller objections, more or less arguable, but

I think the above is enough to decide
any proposal that has yet come up.
Things may be quite different when
the proposals to increase storage take
sh[illegible] ~~[illegible]~~ . But I do not
think [illegible]
[illegible]

[illegible] the power for [illegible]

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[illegible] that it is not possible
[illegible]

[illegible]

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to show [illegible] are not to
[illegible] would also
[illegible]
[illegible] the cost of [illegible]
[illegible] the power [illegible]
[illegible]

88

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SUPG. ENGINEER'S OFFICE
No. 1073/[illegible]
24 JUL. 1902
P. W. D.
SIXTH CIRCLE.

A.T.M.
18/7/02

No. 89 U.O. d/21-7-02
(U.O.)

S.E. VIth Circle — for opinion — as also of Mr. Keeling. The only way that a continuous supply of power could be given would be by catching the supply after the water left the turbines in a reservoir below. In this way there would be little or no loss for irrigation.

[illegible]
21/7/02

To The Supg. Engr. VI Circle.

S.E.
S.S.26. No. 471
1/8/02.

98

With reference to the papers forwarded with your No.C/1.M.D. I - submit the following remarks:-

Mr.Mackenzie has practically speaking said that in this particular case the developement of the power available & the maintenance & extension of - irrigation are incompatible. Irrigation must undoubtedly be the first con-- sideration but I think that it would be the height of folly to sacrifice the power obtainable for the sake of a few thousand acres of irrigation - were it proved that the power could be developed at such a sacrifice. The great obstacle to the development of the power is the fact that, as matters now stand, it is not possible to show or guarantee continuous supply without largely reducing the irrigation area. This obstacle will probably disappear altogether with the provision of - additional storage above & below - because it will be necessary to empty the upper reservoir during the closure to provide for the advent of the South-west monsoon. It is too early yet to give any definite opinion on the -- continuous volume that may thus probably become available but looking at the registers from June 1900 up to - date it seems possible that continuous supply sufficient to produce from - 50,000 to 60,000 Hp.could be obtained with the arrangement presumed without

any detriment to irrigation. But it is possible that under certain circumstances it might in bad seasons be necessary to sacrifice the crops on a comparatively small area to ensure continuity. Such a contingency might be covered by fi-nancial compensation from the profits accruing from the sale of the power.

2. Presuming the development of the Power to be possible there is in my opinion no doubt what the first application should be & that is the supersession of steam by electricity on the S.I.R. for traction purposes. The difficulties in the way are no doubt great but they are by no means insuperable. The great advances made in electrical science in recent years have largely minimised the difficulties in transmission since Col. Pennycuick's Committee sat. It must also be remembered that modern electricity which dates practically speaking from 1881 is only just of age & that further developments in the voltage at which and distance to which electricity can be conveyed are likely to be practically demonstrated in America in the immediate future.

3. My opinion is that Government are in possession of a valuable source of power but how valuable it is not possible to definitely state at this juncture. As to how this should be used I personally consider that Government ought to use it for the improvement of what is practically their own property viz., the S.I.R. in the first instance. Again as to how

10P

this should be accomplished I am of opinion that the problem should be worked out together with the scheme for additional storage by a Government officer doing the latter. For actual details such as choice of electrical machines this officer should be - empowered to consult electrical - specialists if necessary & visit - working installations. The money so laid out would not be a large loss supposing the result to be unsatisfactory & quite insignificant in the event of success.

4. As matters stand at present no really genuine offer is likely to be made & any would-be concessionaire must ask for conditions or - guarantees which Government are not now in a position to give. Persons like Mr.Gribble are only after promotion money & option sales & a - point blank refusal should in my - opinion be given to all such. As I re-marked above I am of opinion that Government should tell their own - Engineers to thrash the problem out & give discretionary powers to the officer employed. Without the discretionary powers sketched the - problem will eventually disappear in a cloud of correspondence. With them Government would have either a definite scheme before them or an adverse report after the lapse of two or three years. Either of which would be dealt with on its merits.

I am of opinion that this is the course best suited to the interests of Government as it will lead to something — definite which is not a possible result with the present mode of dealing with the problem.

A. T. Rule
1/8/02
Executive Engineer,
Madura Division.

3,000—20-5-01.

Public Works (1902) Department.

CURRENT No. 147. W.D.

From

[Name] F. J. Wilson Esquire

[Designation] Superintending Engineer, VI Circle

[Station] Uthamapalayam

No. C/6. M.D.

Dated 29 August 1902

Enclosures {Plans / Others} ~~Total~~ 2 Files tea

Spare copies

Received 25. 9. 1902.

Registered 25. 9. 1902

SUBJECT.

Periyar Water Power —— Reporting on the subject of the utilization of the ——.

E. I. for orders

BACK PAPERS.

FURTHER PAPERS.

[initials] 1.10.02.

To

The ~~Chief Engineer~~ / ~~Secretary to Government~~, Public Works Department.

for Irrigation

Sir,

Enclosure.

E. Is Complete file in 2 parts returned + 1 note of Mr. H. T. Keeling

With reference to your Endorsement No: 89 W.O. dated 21st July 1902, I make the following remarks:—

It is practically certain that no use is likely to be made of the Periyar power now being wasted without some guaranteed minimum.

It seems also to be the case that unless such a minimum were fixed at a very low figure there would probably arise occasions when it would be necessary to sacrifice the interests of the irrigation of a certain area of land, in order to secure the minimum required for the utilization of the

power

power. The question arises to what extent is such a sacrifice justifiable?

By constructing a reservoir on the plains such as is now being investi-gated, it seems possible to arrange that a large portion of the H.P. avail-able should be utilized in normal seasons without sacrificing irrigation interests at all. In bad seasons the interest of irrigation on a certain area might be sacrificed. On the one hand we have some 3,000 to 6,000 H.P. running absolutely to waste for the greater part of every year whether good or bad and the irrigation of a certain area secured. On the other hand the 3,000 to 6,000 H.P. would be utilized every year, at the possible sacrifice of a small proportion of the irrigated area in bad years only.

When it is considered that the fall available is sufficient to procure 60 effective H.P. for every Cusec and that the same discharge from the

Periyar tunnel taking wastage into account, probably does not secure the irrigation of much more than the same number of acres, I cannot be-lieve that the country would not be a gainer by the utilization of this 60 H.P. at the sacrifice of a proportion of the cultivation of a corresponding area, even should this occur every year, but by hypothesis the sacrifice is only likely to occur in bad seasons and I conclude that the subject is worth careful enquiry.

When Government invited tenders for the utilization of the Periyar power in 1897, it was clearly stated that no supply could be guaranteed during the non-irriga-tion season, and that the supply during the irrigation season was to be subject to interruption by accidents or drought, and I think that the subject ought now to be investigated on new lines which should determine what minimum

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continuous supply could be reason-
-ably guaranteed and at what
sacrifice of irrigation interests —
Until this is done I think the Go-
-vernment is not in a position to make
a satisfactory concession for the uti-
-lization of the power available.

I forward also a note by
Mr. Keeling on the subject.

I have the honour &c
Sir
Your Most obedient Servant

J. J. Wilson
Superintending Engineer
IV Circle

R 147 MS 702

Public Works Department,

Irrigation Branch.

H. E. the Governor ✓
Hon Mr. J. Thomson C.S.I. ✓
Hon Mr. G. Stokes ✓

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Read the following:-

Letter dated 30th May 1902 from Mr. Gribble re. the utilisation of Water Power, Periyar Reservoir.

FOR ORDERS.

I referred the question for opinion to Mr. Mackenzie, Mr. Keeling and Mr. Wilson, Superintending Engineer, VI Circle. Their Memos. are in the file. In my opinion we must tell Mr. Gribble that the question of the utilisation of the water power that may be made available from the Periyar Reservoir is not ripe for solution and that at present we can guarantee no continuous supply throughout the year. We know now that the present storage is hardly sufficient for the land in Madura, that is now or will be shortly irrigated, and that to give a continuous supply from 1st March to 15th June would be detrimental to the irrigation. Supposing for instance we passed down 250 cubic feet per second for power from the lake from 1st March to 15th June, the usual time of closure, we should, as matters stand at present, lose 86400 x 250 x 105 days = 2268 millions cubic feet for irrigation or about 1/3 of the reservoir capacity above sill level of tunnel. This would be a serious matter. Recently vide G.O., No. 434 I, dated 12-4-02 orders have been issued for investigation of the possibility of increasing the storage capacity and of so extending irrigation. If this is possible and if we can catch 250 cubic feet per second or more in a reservoir below the possible site of the power house, irrigation, which should be the first condition, will lose little or nothing by the use of this continuous supply for

power purposes. Under the best conditions in my opinion it will not be possible to guarantee -- hereafter with increased storage a greater yearly continuous supply than 250 cubic feet per second - which ~~in~~ with the available fall of something over 1000 feet might give 20, to 25,000 effective Horse Power at the power house. During the time that the water is being discharged for irrigation say from 15th June to the end of February the Horse Power that - might be generated would be three times as great - but for commercial purposes it is the steady yearly supply that is the leading factor. As soon as the investigation for increasing the storage has been completed I would suggest that a Committee be -- appointed to report fully on the feasibility of utilising the power available and how best to --- reconcile the two interests of irrigation (which has first claim) and of power generation.

3/9/02

I approve. Circulate to H. M's

5-9-02

It is plain that at present Govt. is not in a position to consider any offers and that it will not be so till the storage arrangements are completed. I agree with Mr Kerling that Mr Gubbs and the like should not be

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a point blank statement that Govt. is not prepared to make any concession at present.

[illegible] 11/9/12

[illegible] 11/9/12

[illegible] 11/9/02

[illegible] 11-9-02

1-15

H.E. the Governor
Hon Mr J. Thomson C.S.I.
Hon Mr G. Stokes.

PUBLIC WORKS DEPARTMENT,
IRRIGATION BRANCH.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Periyar. Water power.

READ again the following

A

Quote

H — G.O. No.498 I, dated 28th May 1897.
J — G.O. No.762 I, dated 19th August 1897.
P — G.O. No.434 I, dated 12th April 1902.

Read also

Letter from Mr. J.D.B.Gribble, dated ~~31st~~ 30th May 1902.
Endorsement No.1025 dated 6th June 1902 of the Public Department.

Print

Print notes (including Mr Kealing's note & S.E's letter) on yellow paper

Order thereon. No: 1145 I, 4.10.02

The question of the utilization of the water power that may be made available from the Periyar reservoir is not ripe for solution. In the present state of things no continuous supply throughout the year can be guaranteed, as any water let out from the lake for power generation in the non-irrigation season between 1st March and 15th June would not only run to waste but considerably reduce the volume of water in the reservoir. In G.O. No.434 I, dated 12th April 1902 orders have been issued for the investigation of the possibilities of increasing the storage. If this is found feasible the question of utilising some of the water for power purposes will be made the subject of further enquiry. Meanwhile Mr. Gribble will be informed that the

Issue
23/9/02
D.I.

19-9-02

23/9/02

Government is not prepared to make any concession ~~at present~~.

2. The requests made in clauses (2) and (3) of the last para of his letter will be transferred to the P.W.D. Railway Branch for disposal.

17/9/02

18/9/02

21.9.02

To

J.D.B.Gribble Esq.

The P.W.D. Railway branch, ~~with extract from Mr. Gribble's letter.~~

,, Supg. Engineer, VI Circle.

,, Chief Engineer for Irrign.

DESPATCHED 21 OCT. 1902

E. I. Form No. 1—1,000—10-5-01.